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#### **Agenda**

- Wireless Industry Overview
- Key Technology Trends
- Applications for Government
  - How is wireless technology being used in govt?
  - What questions should the manager ask?
  - How can industry help?
- City of South Sioux City Wireless Project
   Lance Martin & Greg Koinzan
- Audience Participation
- Q&A



### **Wireless Market Segments**

- Voice Mobile phones (cellular, satellite, PCS)
- Data Email, micropayments, inventory management
- Messaging Paging, two-way radio, dispatch, SMS/MMS
- Location tracking GPS, RFID
- Internet systems Gaming, WLAN, wireless Internet (services, shopping, entertainment, news, etc.)









#### **Wireless Market Drivers**

#### Growth in select segments:

- Mobile communications
  - Voice, messaging, email
- •WLAN (Wi-Fi networks)
  - Home, businesses, public "hot-spots"
- Location based services (LBS)
  - Tracking, "yellow pages", iMode
- Wireless gaming
- M-commerce and M-services





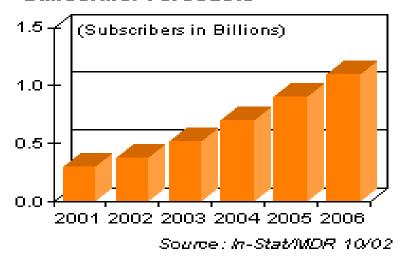






### **Wireless Industry Projections**

#### Worldwide Messaging Subscriber Forecasts

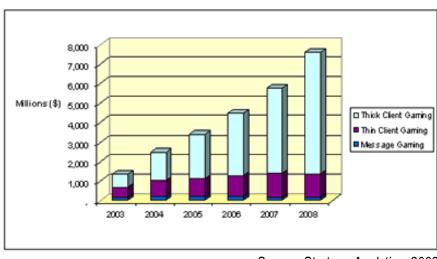


1.3 billion wireless phones by 2006 worldwide

-- The Yankee Group, 2001

Forecast: LBS revenues of \$11 billion by 2005 -- The Kelsey Group, 2001

#### **Global Wireless Gaming Revenues**

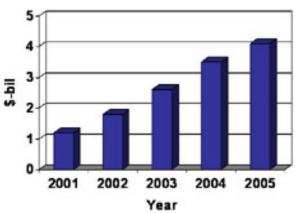


Source: Strategy Analytics, 2003



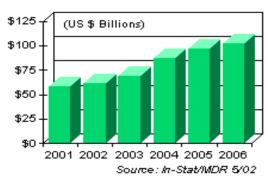
# **Wireless Industry Projections**

#### Forecast Sales of Wi-Fi Equipment

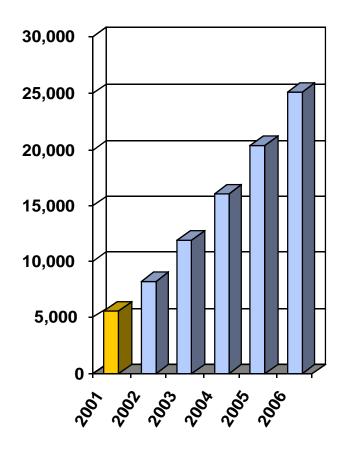


Source: Cahners In-Stat Group, 2001

#### **Global Handset Sales Forecast**



U.S. Wireless Data Business Subscribers (thousands)



Source: In-Stat/MDR, 2003



## **Key Technology Trends**

- Cellular
  - 2G ==> 2.5 G ==> 3G networks (WCDMA)
  - Voice/low speed data ==> high speed voice+data
  - Enables MMS, wireless gaming, LBS
- Wi-Fi/ WLAN
  - IEEE 802.11b ==> IEEE 802.11a, 802.11g
  - IR, RF ==> Bluetooth (IEEE 802.15), HomeRF
  - Land line, power line (X10) ==> wireless
  - Enables wireless networks in homes, businesses



## **Key Technology Trends**

- Technology from wireless gaming
  - MM compression algorithms
  - Peer-to-peer networks ==> collaboration
  - On-line payments ==> security, m-commerce/svcs
- Technology from LBS
  - Emergency service locators
  - Pinpointing crime scene locations
  - LBS together with geospatial visualization



# **Key Technology Trends**

- Wireless security
  - Identification
  - Authentication
  - Authorization
  - Encryption





- Wireless application development
  - Java (J2ME)
  - Windows CE
  - BREW









### **Govt Applications – Citizen Service Portals**

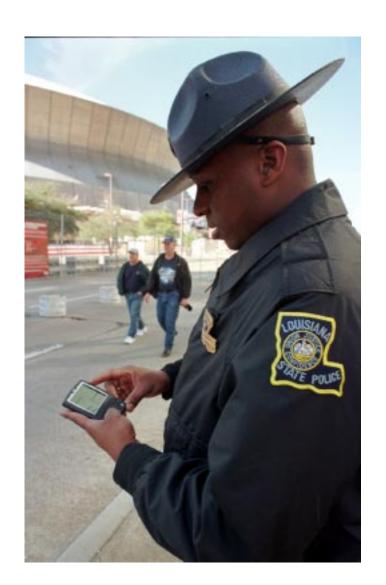


- Look up information
  - Office locations, hours
  - FAQs (instead of tying up operators)
  - Citizen self-services
- Micropayments for services
- Emergency alerts/ warnings
  - Traffic accidents/ re-routing
  - Amber alert
  - Weather emergencies



# **Govt Applications – Public Safety Solutions**

- Mobile law enforcement
  - Coordination across jurisdictions
  - Real-time database checks
    - NCIC, missing persons
    - DMV records, warrants
- Radio dispatch
  - Emergency services
  - First responders
- Location based services
  - Nearest police station, hospital
  - Pin-point accident/ crime scene locations





## **Govt Applications – Asset Management**

- RFID tags
  - Evidence from crime scenes
  - Government property (tools, arms)
  - Controlled materials crossing jurisdiction
- Wireless "inventory management systems"
  - Cargo/ luggage at airports, sea ports, train stations
  - Government warehouses, distribution centers
  - Emergency supplies, medicines
  - Military equipment maintenance







#### **Govt Applications – WLAN Networks**





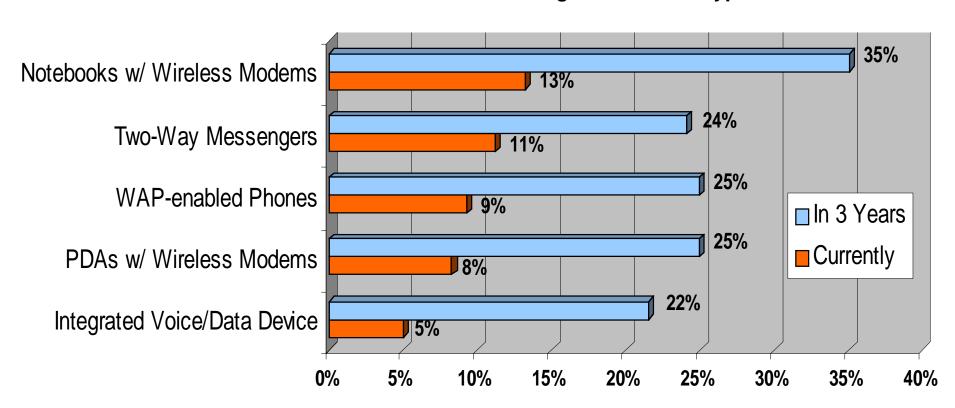


- Connectivity to remote locations
  - Agriculture coop field offices
- Distance learning/ training
- Museums, national/state parks
  - Interactive guides
  - Location based multimedia kiosks
- Emergency response IT infrastructure
  - FEMA, NTSB, crime-scene investigation
- Military rapid deployment forces



### **Question: What Devices Should I Support?**

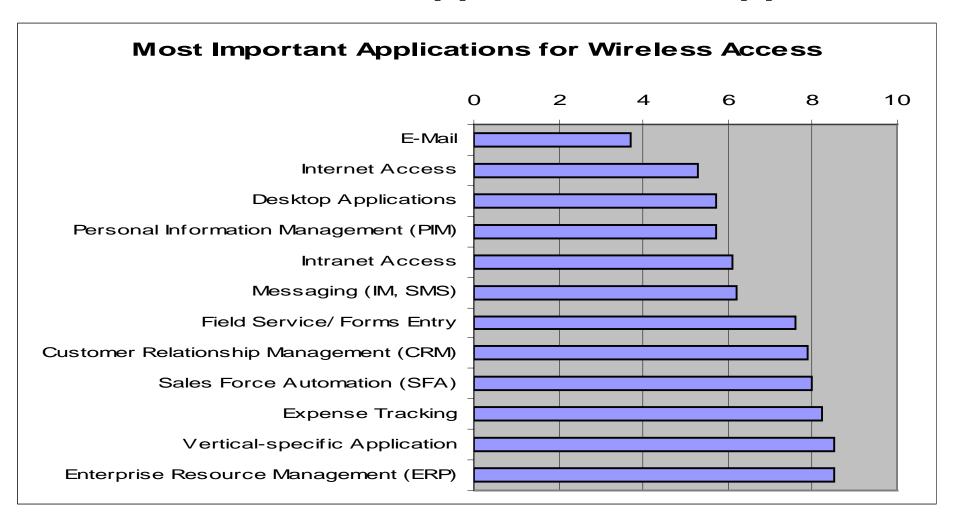
#### Percent of Mobile Workforce Using Data Device Type



Source: Yankee Group 2002 Corporate Wireless Survey



## **Question: What Apps Should I Support?**

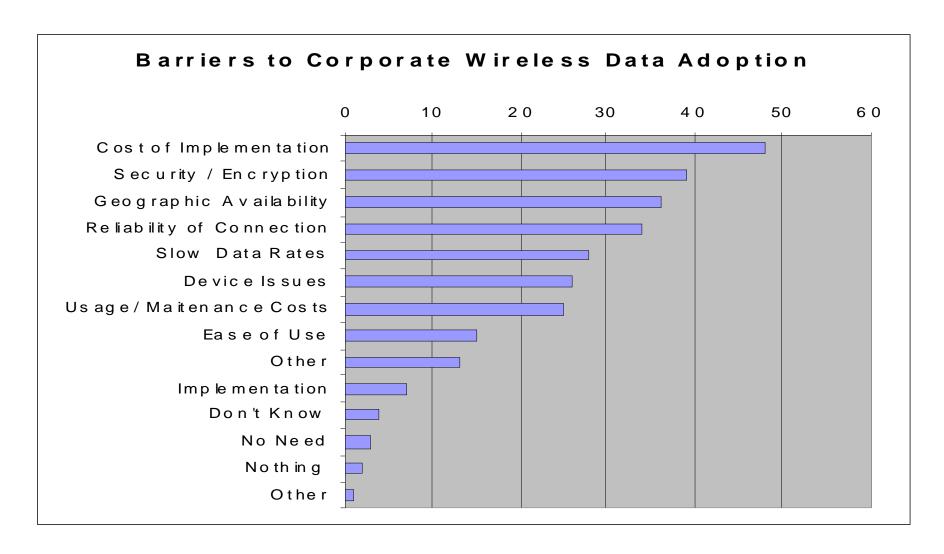


Note: Importance scores based on a scale of 1 to 13, with 1 being the most important

Source: IDC, 2003



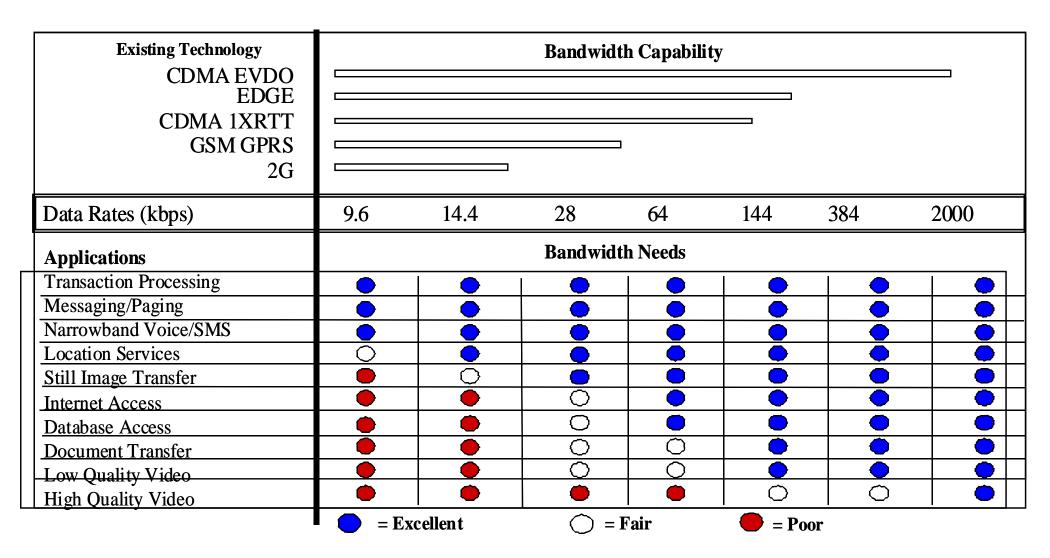
### **Question: What Are My Top Issues?**



Source: In-Stat / MDR, 5/03



## **Question: What Are My BW Requirements?**



Source: Based on Motorola and Yankee Group Analysis



#### Other Questions to Ask

- Will it integrate into my existing infrastructure, and what does it take?
- What development environment(s) do I need to support?
- Do I have the capability to frequently update for new client devices?
- What are the security and privacy implications?
- Is there a backup for when wireless is not available? Do the apps need to work in disconnected mode?



#### Other Questions to Ask

- Are the services push (always on) or pull (on demand)?
- Is there truly a business justification for going wireless? What is the ROI?
- Can I do this better with wireless than with landbased technologies? What are my performance metrics?
- Do I develop and manage these services, or do I use a service provider?



### **How Can Industry Help?**

- Provide ROI models to help in evaluating business returns on wireless investment
- Supply case studies to improve understanding of benefits and drawbacks
- Provide reference architectures and success stories to aid in design and deployment, and to identify what works and what does not
- Put "skin in the game" by funding proofs-of-concept
- Would like to get your inputs/ feedback



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